CONNECTED GOVERNMENT

TOWARDS DIGITAL-ERA GOVERNANCE

INSTITUTE FOR GOVERNANCE & POLICY ANALYSIS | UNIVERSITY OF CANBERRA

IT'S HOW WE CONNECT

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ABOUT THE INSTITUTE FOR GOVERNANCE AND POLICY ANALYSIS

The Institute for Governance and Policy Analysis at the University of Canberra was established in January 2014 to harness the research strengths of the ANZSOG Institute for Governance (ANZSIG), the Centre for Deliberative Democracy and Global Governance (CDG) led by the Australian Laureate Professor John Dryzek and the National Centre for Social and Economic Modelling (NATSEM). The aim of the Institute is to create and sustain an international class research institution for the study and practice of governance and public policy. The Institute has a strong social mission committed to the production of leading edge research and research driven education programmes with genuine public value and, by implication, policy impact.

The integration of ANZSIG, CDG and NATSEM has created exciting opportunities for the development of cutting edge, mixed methods research in governance and public policy analysis through combining knowledge in institutional design with expertise in qualitative and quantitative methods, evaluation, micro-simulation and policy modelling. It has also allowed us to assemble probably the largest critical mass of governance and public policy scholars in Australia and an eminent adjunct faculty which includes 14 award winning members of the Commonwealth Senior Executive Service and the world of political communication.

Policy changes often have to be made without sufficient information about either the current environment or the consequences of change. IGPA aims to be a key contributor to social and economic policy debate and analysis by undertaking independent and impartial research of the highest quality, including supplying valued consultancy services. In keeping with IGPA's core mission, many of our research projects have had significant policy impact and led to changes in policy.

ABOUT THE AUTHORS

Professor Patrick Dunleavy is Centenary Professor of Governance at the Institute for Governance and Policy Analysis (IGPA), University of Canberra and Chair of Public Policy, London School of Economics. Patrick reinforces IGPA's research strengths in two main areas. Firstly, the development of public sector IT systems and other large-scale modern public policy systems and future trends in public management. His book Digital Era Governance claims that a new paradigm of management focusing on three themes of recentralization, holism and digitalization has replaced the previously dominant 'new public management'. Patrick's latest publications in this area also include Digital Era Governance: IT Corporations, the State and E-government (Oxford University Press, 2009), Making and Breaking Whitehall Departments (Institute for Government, 2010), and The Future of Joined up Services (ESRC, 2011). His work with LSE Public Policy Group includes detailed analyses of public sector productivity, citizen redress, policy evaluation, e-government and other related topics, mainly in UK central government but with some local and international experience.

Professor Mark Evans is currently the Director of the Institute for Governance and Policy Analysis and Professor of Governance at the University of Canberra. His research focuses on governance and policy analysis. He is the author or co-author of 25 books including the best-selling politics book in Australia in 2011; The Rudd Government. His most recent book is Methods that Matter (The Policy Press, 2016) with Gerry Stoker. Mark was previously, Professor of Government, and Head of the Department of Politics at the University of York, UK and the inaugural coordinator of the World-wide Universities Public Policy Network. He has edited the international journal Policy Studies since 2005. Mark has acted as a senior policy advisor, delivered leadership training and managed evaluation projects in 26 countries including Australia, Brazil, China and the United Kingdom and for international organisations including the European Union, the UN and the World Bank. Mark has worked with several Commonwealth departments over the past five years on change governance issues. He has been awarded honorary research positions at the Universities of Bath, Hull, and York in the UK and Renmin in China and is a Council member of IPAA in the ACT.

Carmel McGregor PSM is an Adjunct Professor at IGPA University of Canberra. Carmel is the former Deputy Secretary People in the Department of Defence. Carmel's previous position was that of Deputy Australian Public Service Commissioner (APSC). During this period, she was a member of the Prime Minister's Advisory Group on the Reform of Australian Government Administration. In 2011 she led a review entitled 'Pathways for APS Women' in Defence. From 2008 to 2012 Carmel was Australia's representative and Vice Chair of the OECD's Public Governance Committee. She is a Fellow of the Australian Human Resources Institute (AHRI) and non-executive director of the AHRI Board, a Fellow and Vice President of the Institute of Public Administration Australia in the ACT, and a Fellow of the Australian Institute of Management. She was the inaugural Public Policy winner in the AFR/Westpac 100 Women of Influence awards in 2013.

1. EXECUTIVE SUMMARY

> *"Things take longer to happen than you think they will, and then happen faster than you thought they could".*
>
> **Larry Summers**

The Australian Public Service (APS) is currently undergoing a historic shift towards the establishment of Digital Era Governance (DEG). The process of change challenges the established ways in which policy is made and public services are delivered, monitored and evaluated. Most significantly, it questions dominant public sector cultures and (sometimes), values and provides evidence of the capacity of many departments and agencies in the APS to adapt to new realities. We now live in a digital era, where rapid and disruptive change in societal behaviour and industrial and economic patterns have become the norm. As the Prime Minister Malcolm Turnbull stated in his April 20 address to the Australian Public Service in the Great Hall at Parliament House:

> *"Digital disruption, greater transparency in data and information, contestability of advice, rising community expectations for fast and personalised government services are just a few of the challenges you face...In this new economy we need Australians to be more innovative, more entrepreneurial and government should be the catalyst...Now, I talk a lot about people being this country's greatest asset because the next boom is the ideas boom...I want the APS to be part of that boom. That's why one of the pillars of our innovation agenda is government as an exemplar. I want you to be bold in your thinking. I want you to lead by example".*

But is government prepared to be the catalyst and the exemplar? The Institute for Governance and Policy Analysis (IGPA) was commissioned by Telstra in February and March 2016 to explore this question through in-depth interviews with digital thought leaders working at the heart of the change process in Commonwealth, Territory and State government. The findings that are synthesized in this executive summary are organised around six key questions.

THE REPORT PRESENTS FINDINGS IN RESPONSE TO SIX CORE ISSUES

What are the drivers of digital change?
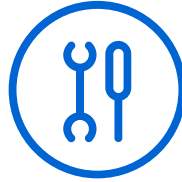
How is the government responding?

What are the main barriers being confronted?
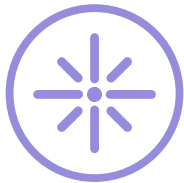
From where does Australia learn its digital lessons?

Where is government acting as a digital exemplar?

How can strong, mutually beneficial digital partnerships be built and nurtured?

1.1 WHAT ARE THE DRIVERS OF DIGITAL CHANGE?

All of our respondents identified prevailing macro-economic conditions as a stimulus to digital change. This was variously associated with 'cost containment', 'doing more with less', the 'austerity-climate', 'getting best value', achieving 'productivity gains', 'returning the budget to surplus' or 'the next logical step after fiscal consolidation'. The majority were of the view that austerity provided fertile conditions for digital change, but that in the short term it also complicated the investments needed to achieve medium to long-term efficiency gains.

Notably most respondents recognized that the pace of digital change had accelerated as a consequence of the emergence of a strong political agenda fostered by Prime Minister Malcolm Turnbull 'who gets technology and the opportunities that it provides for improving problem-solving in a period of fiscal constraint'. At the same time there is also overwhelming evidence of the need for government to respond to a culture shift in Australian society where consumerisation has heightened citizen expectation for quality on-line service interactions 'any time, any place, anywhere'.[1]

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[1] See: ATO, http://lets-talk.ato.gov.au/Digitalbydefault/news_feed/digital-by-default-consultation-paper-november, accessed 22 March 2016.

1.2 HOW IS GOVERNMENT RESPONDING?

Most of our interviewees acknowledged that this was a period of accelerated change or as one informant put it 'Uber change', where digitisation is enabling significant strides in the ways in which data is collected and analysed ('data is the new oil'); where insatiable demand for quality services can be met ('digital is a survival strategy – how else will we cope?'); and where government can play an important role in facilitating economic development and promoting Australian products ('digital provides government with a more obvious role to play in facilitating economic development').

We found evidence of a very significant agenda of change underway but also observed that 'digital era' risks have grown. These include: threats from cyber-attacks and e-security breaches; digital expansions in the competencies of criminals, terrorists and hackers; and scale increases in the scope of consequences if contemporary digital security or storage provisions are breached, deliberately or inadvertently.
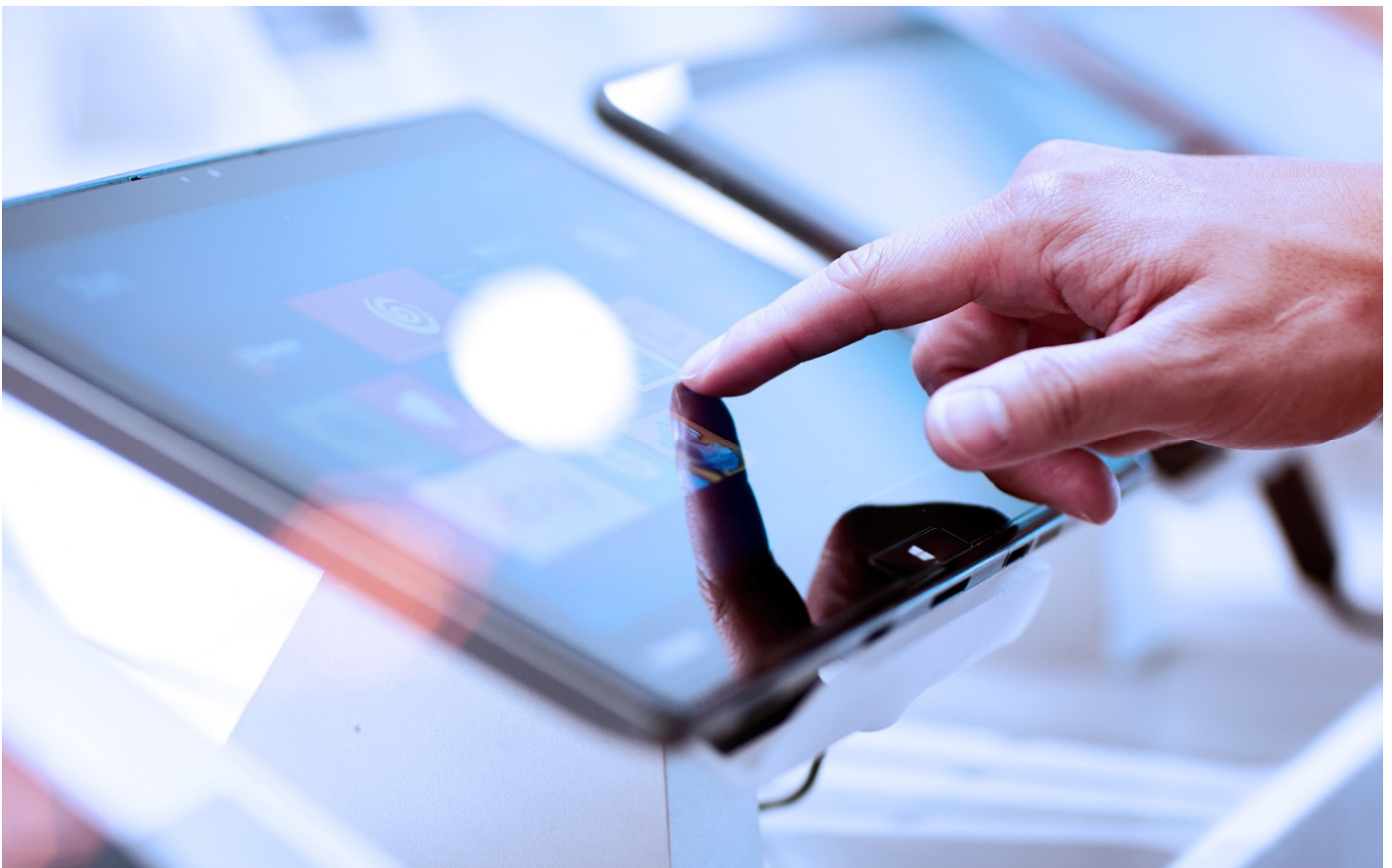
1.3 FROM WHERE DOES AUSTRALIA LEARN ITS DIGITAL LESSONS?

Most informants were of the view that 'Australia is currently playing catch-up with its European counterparts' with regard to digital change but 'we compare well with the US'. Some argued that the APS was not very open to new ideas but others that internationalisation involves both informal and formal processes of policy learning through professions and international organisations. Although the source of learning depends on the nature of the digital innovation, the APS tends to learn most of its digital lessons from the Anglophone countries such as the United Kingdom (e.g. digital service delivery), New Zealand (e.g. data integration) and the domestic banking sector (e.g. data integration and fraud deterrence). Many informants (including at least five with a UK background) questioned the UK case as a positive exemplar ('but negative lessons can often be more important').

The countries that were impacted most profoundly by the Global Financial Crisis appear to have embraced digital disruption most extensively; in particularly, New Zealand and the UK. Estonia was the exception in this regard. Most interviewees referred to the Estonian example as a source of emulation but recognized that it wasn't perhaps the most exportable example given the countries state of development and different base-line for change. Frequent mention was also made to the Nordic countries and particularly Denmark and the work of the Danish Agency for Science, Technology and Innovation and Mindlab.

1.4 WHERE IS GOVERNMENT ACTING AS A DIGITAL EXEMPLAR?

It should be noted that Australia is currently ranked second behind South Korea in the UN world rankings for the quality of its E-government

(UN 2014, p. 15). However, most respondents were of the view that it is this period of change which will lead to Australia's anointment as a pioneer in digital innovation. Many respondents pointed to examples of APS agencies acting as digital exemplars. The size of the agency, its history and core business and its proximity in relationship to the primary government agenda tends to inform the selection of examples. For example, the Australian Tax Office (ATO) and the departments of Human Services (DHS) or Employment have long histories of engagement in digital innovation due to the large number of transactions they conduct on-line and their potential for joining-up other service areas. Most agencies see significant potential for Artificial Intelligence in enhancing citizen interactions with government and Big Data analytics for improving the quality of real-time decision-making. ATO's Roadmap of Change for Tax Professionals is a good example of a high quality interactive on-line platform and CSIRO's Data 61, and Big Data and Earth Observation project delivered via the AuScope Grid will provide a significant contribution to the generation of quality data for real-time decision-making. In addition, the Digital Transformation Office (DTO) has been established as a strategic Commonwealth resource for experimentation in the co-design of new digital services and the creation of the National Innovation and Science Agenda's (NISA) Digital Marketplace will provide a 'one stop shop' for accessing digital capability. In sum, digital exemplars can be identified in the delivery of on-line services, digitally enabled real time decision-making through advanced data analytics, the use of artificial intelligence and governance mechanisms to enable change.

1.5 WHAT ARE THE MAIN BARRIERS BEING CONFRONTED?

So what did our respondents perceive to be the main barriers to digital change? Familiar themes to those well versed in APS culture were raised mostly focusing on cultural barriers (e.g. perceptions of a risk averse and digitally unaware policy elite), legislative barriers (e.g. privacy and procurement laws inhibiting 'tell us once' and 'ask us once' innovations), resource barriers (e.g. archaic budget rules) and capability barriers.

The most significant of these is viewed to be the capability deficit which is commonly viewed to be the major barrier to accelerating digital change both in the public sector and in Australia more generally. The APS requires greater technology leadership at the Executive level service-wide to strategically manage and lead this scale of digital change. Departments with major digital projects face serious capability constraints in getting skilled staff. And profound changes are required at the tertiary education and postgraduate training levels to ensure fit for purpose digital capability. It appears that the need for STEM postgraduate education has reached crisis proportions in Australia.

1.6 HOW CAN STRONG, MUTUALLY PRODUCTIVE DIGITAL PARTNERSHIPS BE BUILT AND NURTURED?

The APS has a broad range of technology partners to enhance capability in software and application design, the establishment and management of data centres and government Cloud IT services, data analysis, co-design of new business processes (e.g. shared services), the design of 'one-stop' provisions and increasingly 'ask-once' processes. Most interviewees were sceptical about the capability of agencies to build strong and lasting technology partnerships. Nonetheless, our informants identified similar ingredients of better practice for forging productive technology partnerships. These included a variation of the following qualities: 'clear mission or purpose'; 'common understanding of the problem or task'; 'mutual recognition of interdependence'; 'respect'; 'shared responsibility'; 'joint financial investment'; 'clear ground rules'; 'process transparency and accountability' and 'flexibility'. It was envisaged that these qualities would help to foster trust systems and build problem-solving capability. There was divided opinion as to whether a set of common values were required to underpin the venture. These observations are in keeping with better practice in collaborative governance.

2. SEEING DIGITAL

There is compelling evidence that digital change is transforming agencies with significant service delivery and data analytic functions in a radical way. Moreover, there is a strong current of opinion within the APS elite that there is a tangible difference to this process of change reflected in the strategic alignment between the Turnbull Agenda and the desire in the 'Digital First' and data driven departments to exploit advances in technology for more efficient decision making and service delivery. However, concerns remain over the capacity of the APS to access the capability necessary to make a great leap forward lending support to the importance of a digital workforce capability review, a revised understanding of the role of the CIO and the development of a Commonwealth Digital Academy. Moreover, there is still much to be done in the APS to clearly articulate the purpose and benefits of digital change and embed it in the hearts and minds of all public servants.
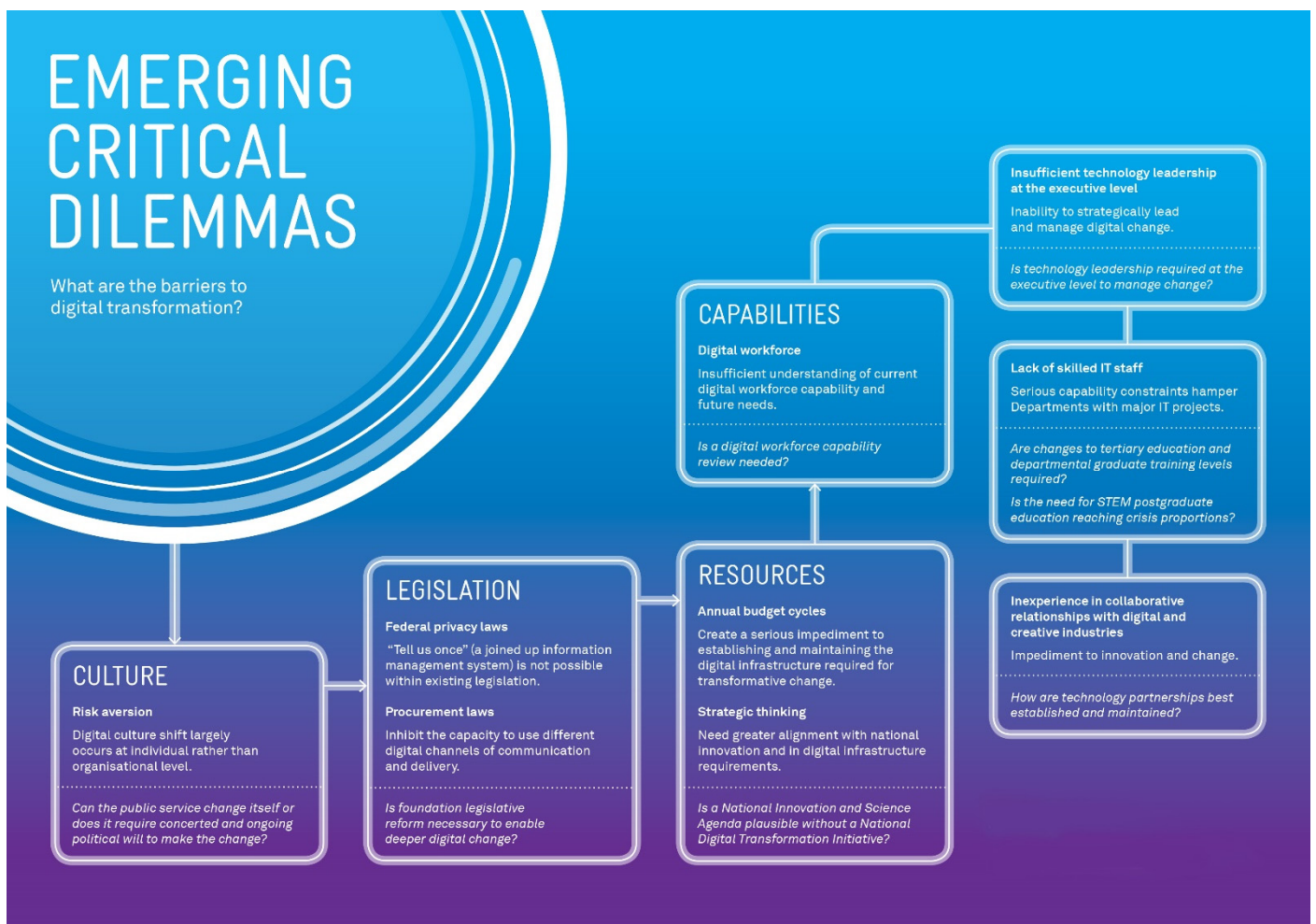
2.1 SIGHTING SHOTS

Digital Era Governance (DEG) changes made feasible by Internet and Web-based technologies and applications are beginning to move to centre stage in many public services around the world (see Table 1). They are increasingly vital to executive government operations in all advanced industrial states, albeit with a 'culture lag' compared with business and many civil society adaptations. The hitherto dominant paradigm of 'new public management' (NPM) commonly practiced in Westminster-style democracies, marginalized technological changes in favour of a managerialist emphasis on organizational arrangements and strong corporate leadership. This reflects a long-running tendency of public administration to downgrade technological factors; a view that some academics have argued should be fundamentally reappraised (Politt, 2011; Margetts and Dunleavy 2013).

Australia was an early leader in e-Government (Accenture 2003; Chen et al., 2007), developing an international reputation that peaked around 1999. After that time, progress has been rather mixed. Australia still fares well in the plethora of consultancy rankings of e-Government and some of the largest departments have remained at the forefront of innovation in this area particularly in the realm of simplifying citizen interactions with government. However, Digital Era Governance 1 (DEG1) interventions that successfully 'join up' across departments or tiers of government (reintegration), or attempts to create client focused structures for agencies through 'end to end' redesign of services (needs-based holism) or 'digital by default' electronic delivery of services have remained scarce. Not to mention DEG2 interventions (using the 'internet of things') that fully exploit the opportunities afforded by the social web or build capability in Big Data analytics or Artificial Intelligence. But is this now changing? Are we currently living through a decisive culture shift towards DEG in Australia? (see Table 1).

Table 1: Four Models of bureaucracy and the IT/digital role

MODEL	SERVICE ARCHITECTURE	ROLE OF IT/ DIGITAL
New public management	Managerialist modernization focusing on disaggregation, competition and incentivization	**Peripheral** - initial tokenistic IT adoption for better service, but strong oligopolistic IT markets, weak e-Gov, no citizen/consumer role
Digital Era Governance 1	Reintegration and early holism; digitalization of paper/phone-based systems, basic nodality	**Central** - first wave transactional e-services and static web sites, portals – still at periphery
Digital Era Governance 2	Austerity-strengthened reintegration; proactive needs-based holism; more nodality	**Core** - social media, rich media, co-production, cloud/utility IT, early 'timestream' starts
EDGE Essentially Digital GovernancE	**Inherently digital-by-design services; free or low cost scalable services, displacing legacy models. Intelligent centre/devolved delivery architectures; state bureaucracy is nodal actor in the societal time-stream**	

2.2 PURPOSE

The purpose of this report is to kick-start some thinking at the Connected Government CEO Circle on the opportunities for government in a digital world. What are the drivers of digital change? How is government responding? What are the main barriers being confronted? Where is government acting as a digital exemplar? How can strong, mutually productive digital partnerships be built and nurtured? As a starting point to this important long conversation between CEOs and their government counterparts, this report presents the findings from a survey of digital thought leaders working at the heart of the change process in Commonwealth, Territory and State government.

Two stages of research informed this task. First, at the exploratory stage, we co-designed and processed an on-line survey of the perceptions of Summit invitees to the critical challenges of digitisation. Second, we used the findings from the scoping survey to shape the questions for 34 elite interviews which were conducted with senior members of the APS and special advisors on digital change.

The interviewees were selected on the basis that they had executive voice i.e. the capacity to influence decision-making. We focused on the following topics:

- current challenges to the APS within context of current macroeconomic conditions;

- views around policy reform and government priorities;

- perceptions of the potential contribution of digital transformation to enhancing the quality of service provision;

- views of how prepared the APS is for 2020;

- insights to managing and delivering to public/citizen expectations in an austerity context;

- understanding of barriers to reform; and,

- identification of critical dilemmas and better practice.

Table 2 shows that our thought leaders were drawn from top roles relevant to digital change, and covered every key department and many agencies. We are grateful to everyone involved for sparing us so much of their scarce time and answering our questions so fully and insightfully.[2]

Table 2: The role of our interviewees

Secretary, or Agency Head or National Manager	16
Deputy Secretary	5
CIO with executive voice	8
Senior advisors to government on digital/innovation	6
Total interviewees	34

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[2] The typology of departments/agencies that we used to inform our selection of organisations for interview and a list of the departments/agencies participating in the research can be found at Appendix 1.

The remaining substantive sections of this report present our findings in response to the six core questions identified above: (1) What are the drivers of digital change? (2) How is government responding? (3) From where does Australia learn its digital lessons? (4) Are there examples where the government is acting as a digital exemplar? (5) What are the main barriers being confronted? and (6) how can strong, mutually beneficial digital partnerships be built and nurtured?

2.3 WHAT IS DRIVING DIGITAL CHANGE ACROSS THE PUBLIC SERVICES?

We live in a digital era, where rapid and disruptive change in societal behaviours and industrial/economic patterns have become the norm. When we asked our interviewees if digital changes had now plateaued, or were likely to continue in the next decade at or above the pace of recent years, they unanimously chose the latter. No one in government now expects a 'quiet life' on the technology and organizational fronts – a significant change from senior leaders' expectations in earlier periods.

Yet the full scope and character of digital change was variously perceived and expressed by differently located interviewees, reflecting their departmental and portfolio experiences. Relatively few people felt that they had a comprehensive overview, and so we have compiled Figure 1, which shows the key pressures and trends pointed to by our interviewees as a whole. In the top left corner, we locate the two outside trends that interviewees saw as having most impact on government, namely the growth of new technology giants such as Google, Facebook, Amazon and Twitter on the one hand; and the readiness of consumers to increasingly live their lives digitally and online, in the process making huge amounts of information about themselves available to commercial and civil society actors.

These and other changes have precipitated eight very substantial challenges for Australian public service agencies as a whole:

1. **Citizens expect to contact and transact with government agencies digitally and online.** Standards for digital services delivery set in the private sector increasingly apply to government agencies. Citizens and enterprises that are 'digital natives' expect to interact with government in standard modern ways and take a dim view of services delivered inadequately online, or using technologies of yesteryear.

2. **Government must de facto shift towards designing and delivering digital services** that are designed to operate digitally from the outset and have no (major) non-digital existence. This marks a major change from the previous era of lightly or later digitizing services originally conceived for an era of paper forms or over-the-counter offices delivery.

   In the modern era too, digital delivery is the key foundation for enhancing the productivity of government services. Going digital is an essential precursor to replacing 'volumetric' regulation with risk-based assessments, for instance. Top executives of the major departments transacting with citizens and business see investing to stay connected with civil society as an essential element of their business process development – and recent IT spends are large percentages of some major agencies' total budgets.

   A recognition of the scale and importance of challenges 1 and 2 underlies Australia's establishment of the Digital Transformation Office, and the DTO has focused largely on these aspects to date. But in addition, there are changes 3 to 8 below:

3. **The inherently digital content of many agencies' work is increasing rapidly.** To keep pace with external digital change many public services formerly seen as 'labour intensive' are

grappling with digital tasks in order to carry out their core functions. For instance, a law enforcement search for evidence on a terrorist cell or criminal gang may uncover no documentation, but perhaps a terabyte of digital information contained on (say) 40 mobile phones used randomly, numerous memory stick, and perhaps a couple of tablets or PCs – much of the information being encrypted. Similarly, a junior doctor clocking on for a ten-hour shift in an emergency room may click a mouse 4,000 times in ten hours. And once paper-heavy departments like customs or immigration have moved towards risk-based assessment or robot passport gates, where all key information loads are handled digitally and only relatively rare (if vital) exceptions trigger in-person inspections. In a digital society, every regulatory agency must also understand and be able to predict how social behaviours change, and new forms of digitally strengthened threats and risks to social welfare arise and evolve.

4. **Back-office functions across government now must continuously upgrade.** Previous expectations were often for long stasis periods, interposed by 'big bang' IT refreshes – often with government agencies' desktops, websites and communications technology lagging years behind those used in private businesses and civil society. Now, though, top decision-makers recognize that they must be continuously in touch with wider societal standards, that their mission-critical IT must stay up to date and their internal organization must constantly adjust and improve, in part to help generate the substantial resources needed for IT and online changes.
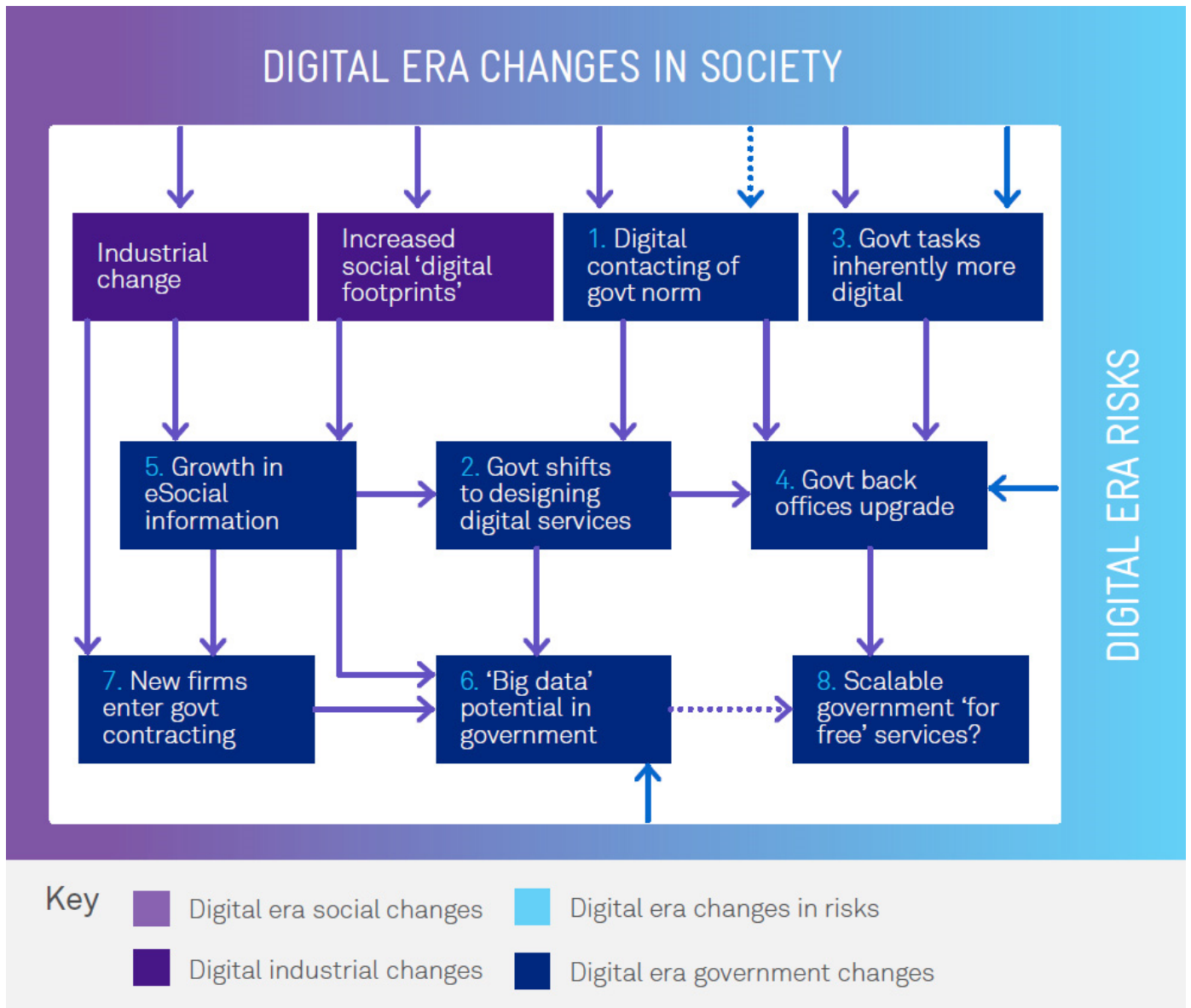
5. **Increasing volumes of digital information relevant for public policy-making are now generated in society**, and already are or might become available to government for free or at minimal recovery cost. These include: administrative data generated by firms (rarely available at present); but also much data accessible by APIs (automatic programming interfaces); and information put online by citizens on social media etc. With the right analytic talent, government agencies may be able to expand their research and information

competencies radically, perhaps especially important for a top-level government in a federation.

6. **There is a large 'big data' potential within government itself.** Public service agencies generate huge volumes of their own administrative data, which many respondents told us they are only just beginning to analyse. Especially when linked together across departments or administrative siloes, when better integrated with digital indices, connected with other sources (such as national statistics and private sector big data), and when supplemented via machine learning, there is great potential for developing new information capacities and better policy solutions across government.

7. **New competitors have entered the government IT market,** with cloud companies and providers offering alternative solutions to most government IT problems - ranging from equipping the desktop in smaller, policy-only departments through to new ways of storing and analysing huge volumes of transactional data. Entrants such as Google or Amazon Web Services are developing extended expertise in areas previously dominated by a relatively few system integrator companies, increasing the competition in ICT procurement.

8. **Scalable and genuinely 'for free' services** can increasingly be generated across many areas of civil government. Wherever statutory services are provided, and non-confidential policy-relevant information accumulates, opening up government's digital assets in active ways offers huge potential for government or others to develop scalable service products that can add marginal consumers and boost economic welfare at virtually zero cost. Sometimes 'open data' provision may be enough for SMEs to grow apps - as with transport apps telling customers when their next bus is coming. At other times a modest public sector investment in a dedicated application or website can generate information gains for citizens directly - as with the British Land registry which makes all English house prices public for free, as a by-product of certifying the sale transfers of properties.

Figure 1: The main types of pressure for 'digital era' changes in contemporary public services

DIGITAL ERA CHANGES IN SOCIETY

- Industrial change
- Increased social 'digital footprints'
- 1. Digital contacting of govt norm
- 3. Govt tasks inherently more digital

- 5. Growth in eSocial information
- 2. Govt shifts to designing digital services
- 4. Govt back offices upgrade

- 7. New firms enter govt contracting
- 6. 'Big data' potential in government
- 8. Scalable government 'for free' services?

DIGITAL ERA RISKS

Key
- Digital era social changes
- Digital industrial changes
- Digital era changes in risks
- Digital era government changes

By any standards the digital agenda here is a huge one. Yet the final component of Figure 2 is the right hand margin box – which stresses that 'digital era' risks have also grown. These include threats from cyber-attacks and e-security breaches; digital expansions in the competencies of criminals, terrorists and hackers; and scale increases in the scope of consequences if contemporary digital security or storage provisions are breached, deliberately or inadvertently. Government cannot any longer meet these risks by trying to stay off the Web, however, or simply creating 'air gaps' between critical systems and the internet. Instead, in a connected world, government systems need to be continuously, actively and agilely defended, not least by securing top talents and modernized systems to maintain essential security.

The most frequently mentioned drivers of digital change by our sample of thought leaders are listed in Table 3 and encompass political, economic, social and technological issues.

Table 3: Most frequently mentioned drivers of change

Turnbull-effect and creation of digital governance policy instruments	**Public opinion**, consumerisation and rising citizen expectations for personalised service provision	**Advances in DEG2 technologies** create new opportunity structures for innovation (e.g. artificial intelligence, social media and Big Data)
MACRO-ECONOMIC CONDITIONS	SMALLER GOVERNMENT PRESSURES	CONTINUOUS IMPROVEMENT IN SERVICES

Macro-economic conditions

All of our respondents identified prevailing macro-economic conditions as a stimulus to digital change. This was variously associated with 'cost containment', 'doing more with less', the 'austerity-climate', 'getting best value', achieving 'productivity gains', 'returning the budget to surplus' or 'the next logical step after fiscal consolidation'[3]. The majority were of the view that austerity provided fertile conditions for digital change, but that in the short term it also complicated the investments needed to achieve medium to long-term efficiency gains.

A Turnbull-effect?

Many respondents recognized that the pace of digital change had accelerated as a consequence of the emergence of a strong political agenda fostered by Prime Minister Malcolm Turnbull 'who gets technology and the opportunities that it provides for improving problem-solving in a period of fiscal constraint'.

"Yes the 'Turnbull-effect' has been huge. Largely because for him achieving innovation through technology is a natural thing".

"The process has definitely accelerated since he [Turnbull] became Prime Minister but there was an electoral commitment to Digital First in 2013".

"The notion of government as digital exemplar creates a space for the digitally-minded to innovate".

"Turnbull is a vibe by which people feel empowered to change things".

A potential drawback of dependence on Prime Ministerial involvement was also mentioned by some observers, namely that in Westminster systems around the world PMs typically accumulate more issues to keep in view the longer they are in office. Maintaining momentum behind digital transformation may thus become progressively more difficult, unless it is successfully institutionalised early on.
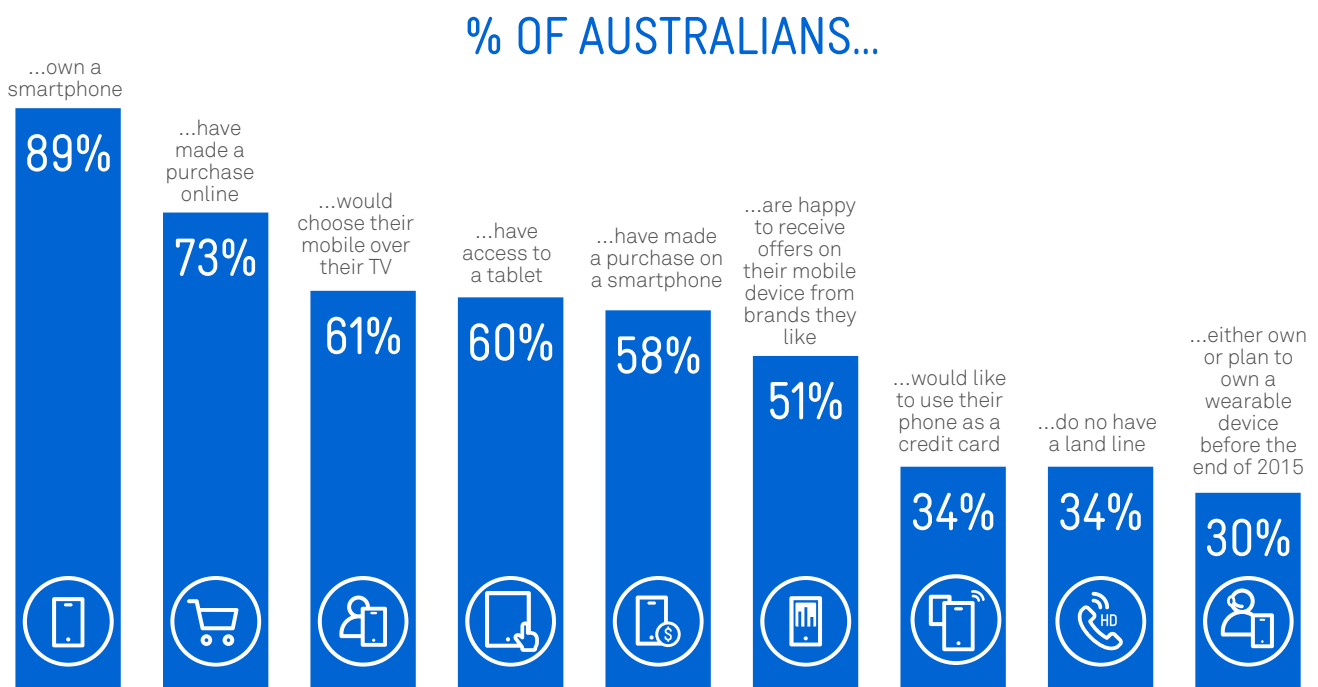
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[3] Unless otherwise stated all quotations are taken from interviews conducted with APS digital thought leaders.

A digital culture shift?

At the same time, as noted above, there is also evidence of the need for government to respond to a culture shift in Australian society where increasing numbers of citizens have become 'IT literate' and expect the same quality of transactions with government that they experience with private service providers through their IPad or smart phone. There were approximately 12.8 million internet subscribers in Australia at the end of June 2015 with only 1.3 million without access [4]. As Table 4 illustrates, consumerisation has heightened citizen expectation for quality on-line service interactions 'any time, any place, anywhere' and this is particularly evident in the uptake of smart phone technology.

Figure 2: Device ownership and mobile

% OF AUSTRALIANS…

...own a smartphone **89%**

...have made a purchase online **73%**

...would choose their mobile over their TV **61%**

...have access to a tablet **60%**

...have made a purchase on a smartphone **58%**

...are happy to receive offers on their mobile device from brands they like **51%**

...would like to use their phone as a credit card **34%**

...do no have a land line **34%**

...either own or plan to own a wearable device before the end of 2015 **30%**

Source: 2014 AIMIA Mobile Phone Lifestyle Index

Continuous improvement and the acquisition of enabling technologies

Although most of our interviewees acknowledged that this was a period of accelerated change or as one informant put it 'Uber change', digital modernisation has been occurring incrementally through a stop-go process of incremental change catalysed by periodic events such as changes in legislation (e.g. 1988 Privacy Act, 1999 Electronic Transactions Act, 2001 Government Procurement Act, 2014 Privacy Act), the acquisition of new enabling technologies (e.g. Artificial Intelligence, Big Data, cloud, smart phones, wireless sensor networks) and the drive for increased productivity. This period is therefore variously defined by our informants as one where digitisation is enabling

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[4] See ABS, http://www.abs.gov.au/ausstats/abs@.nsf/mf/8153.0/

significant strides in the ways in which data is collected and analysed ('data is the new oil', 'data is the new black'); where insatiable demand for quality services can be met ('digital is a survival strategy – how else will we cope?'); and where government can play an important role in facilitating economic development and promoting Australian products ('digital provides government with a more obvious role to play in facilitating economic development').

There was, however, a view that the APS requires a period of disruptive change to make more profound alterations in how things get done – '...we respond really well in a crisis and can innovate very quickly under pressure but not under normal conditions; this says a lot really!'

The impact of these key drivers on APS departments and agencies differs depending on the agency portfolio (i.e. policy, delivery, regulatory role) and size. Large departments with over 50,000 citizen interactions per annum now have 'Digital by Default' targets (basically to accomplish 80% of transactions with citizens online by 2017) and have adopted 'Digital First' mentalities. Smaller agencies (depending on their core business) tend to adopt a needs-based approach due to budgetary constraints and are, on the whole, pragmatic compliers.

2.4 WHAT ARE THE BARRIERS TO CHANGE?

Again patterns of opinion tend to differ depending on the agency portfolio (i.e. policy, delivery, regulatory role) and size. Table 4 illustrates the main barriers to change, and by implication the key concerns for any change leadership strategy. They cluster around cultural, legislative, resource and capability barriers. Perceptions of the degree of risk associated with these barriers differ considerably. It is interesting to note that typical environmental barriers such as political support, public opinion and behaviour or prevailing socio-economic conditions are seen as potential catalysts or drivers rather than barriers to change. One political barrier was highlighted by informants – the pathology of short-termism brought about by the three-year electoral cycle and 24/7 media cycle inhibits the adoption of a long-term view which is critical to affecting sustainable digital change. As we shall see, however, several informants believed that barriers such as risk aversion, legislation and investment were often used as an excuse not to lead change.

Table 4: Most frequently mentioned barriers to change

CULTURAL BARRIERS	LEGISLATIVE BARRIERS
to change leadership	to joining up in areas such as privacy, procurement and the use of DEG2 technologies

POLITICAL BARRIERS
to adopting a long term view

RESOURCE BARRIERS	CAPABILITY BARRIERS
to upgrade an innovate	to adapt and innovate

Cultural barriers

> *"Digital change is not about IT. It goes to the root and branch of what we do and how we do it".*

The cultural barriers – 'the dominant ways we do things around here' – to digital change were also referred to by the majority of informants. These include:

1. 'Government tends to work like a machine rather than a system; digital requires a systems approach because it should be behavioural in character.'
2. 'The separation of the policy elite from delivery means that key expertise is locked out of policy design particularly in relation to service design.'
3. 'The policy elite is dominated by formal economists and their policy values. They have little time for any method that questions their assumptions about how the world works.'
4. 'There is insufficient understanding of what the public values or empathy - the policy elite assumes that citizens want to engage with government. They exaggerate their importance. The majority of citizens want to have as little to do with government as possible.'

There was also reference to the dominance of an 'IT tribe' that has relatively cohesive values that are antipathetic to conceptions of open data or using the 'internet of things'.

Executive voice through digital champions is also perceived to be an important catalyst to change prompting some insiders to propose a radical review of the traditional CIO role to ensure that agencies have a sound grasp of digital issues. In some smaller, less citizen-centric agencies there is perceived to be an absence of a digital strategic perspective. Digital change is often treated as IT management and a 'wait and see' approach drives many digital investment and enabling decisions leading to perceptions of a culture of risk aversion. However, it is also remarkable that IT change is one area where there has been significant toleration of failure in the APS (often viewed as a key trigger to public sector innovation – see Mulgan and Albury, 2003).

> *"Over the past decade several big IT projects have fallen over and the failure has been tolerated. IT is the one area where we haven't been risk averse".*
>
> *"The inability to access resources to deal with old IT is a problem of leadership. The more politically adept secretaries have not found this to be a problem".*

It is notable that in many agencies digital culture shift has already occurred at the individual rather than the organisational level. Indeed, the degree to which a 'Digital First' approach has been taken is reflected in whether digital concerns have been mainstreamed into the organisational culture or compartmentalised into a unit or office. In many agencies significant cultural barriers to deep digital change persist. So what makes it so hard to be strategic in digital government? Perceptions oscillate around seven main areas where difficulties arise in strategic thinking and the implementation of digital strategy in government.

1. **Commissioning.** Daily operational pressures on both the political and permanent leadership can tend to 'squeeze' strategic working out of the system.

2. **Analysis.** Strategic analysis can either be too short term and trend-based to help steer the organisation or too far-fetched and improbable to hold the attention of policy-makers.

3. **Line of sight.** Strategy work can seem to be exclusively about high-level goals, or it can seem to be purely about a particular set of policies, or it can appear to be a preoccupation with functional strategies or with delivery planning. Line of sight is achieved when there is a clear line between delivery in the community and the high-level goals the organisation has set itself.

4. **Product but not enough process.** Strategies that create change within organisations and in the world beyond are the result of a process driven by those who work in the organisation and its stakeholders. Yet too often they are simply documents produced by a small group of consultants which do not create new understanding, still less change.

5. **Insufficient challenge.** A common complaint in government and the wider public sector is that public servants are poor innovators. Strategy requires new understanding and a preparedness to do things in new ways, challenging received wisdom. Yet government

tends to incentivise compliance and conformity in its employees and restrict challenge.

6. **Uncertainty about public value.** Outcomes can be identified using sound analysis, but they also need both the mandate of political leaders and their sustained interest. This means that the organisation as a whole must be capable of focusing on a set of goals and returning to them again and again.

7. **Lack of strategic capability.** Prime Ministers and Ministers in Westminster-style democracies regularly bemoan the absence of strategic capability within their organisations often resulting in the increasing use of special advisors and consultants.

Legislative barriers

Our interviewees were divided on the significance of the legislative barriers to change. Several emphasised that a priori legislation was a prerequisite for disruptive change. 'Tell us once' (a joined up information management system) is not possible within existing federal privacy laws. A similar problem was viewed to apply to procurement laws and the capacity of agencies to use different digital channels of communication and delivery. However, others argued equally forcefully that the call for legislation was 'an excuse for inertia': 'There is normally significant room for manoeuvre in legislation. If the political intent is there; you can make the change'.

Resource barriers

The key resource barriers to digital change are largely associated with finance (budgeting and investment), and a range of capability problems. Budget rules (e.g. persistence of annual budget cycles) are perceived by some to be 'a serious impediment to establishing and maintaining the necessary digital infrastructure for transformative change'. Others were of the view that the Department of Finance 'could be convinced with a sound business case'; whilst others perceived Finance and Treasury as 'compliance-based organisations with no business understanding'.

"There is enough space to do it but you have to do it yourself".

"We can always find a budget rule to suit us".

It is noteworthy, that the creative centre of the innovation agenda in New South Wales is in the Department of Finance and Innovation; although states do assume a greater delivery role than in Commonwealth agencies. There was a strong consensus of opinion that investment in digital infrastructure needed to be closely aligned with national innovation needs with a small number of informants arguing that Australia required a National Digital Infrastructure Initiative.

There was also a strong perception that the Australian public service does not know its digital workforce capability and by implication its present and future workforce needs.

"We don't have the workforce to deliver on a digital revolution".

"We do have the skills but they are in short supply".

The Australian Public Service Commission's 2014-15 State of the Service report does include data illuminating this issue and in a separate segment of the report compiled by the Digital Transformation Office the capability challenge was acutely defined:

> **"[T]he majority of respondents indicate that they know their agencies need to make greater progress, but feel under-equipped to meet the challenges of digital transformation. The 2015 agency survey identified a clear gap in capability. This includes the need for comprehensive digital planning across the APS and the need to ensure digital strategies are integrated with broader agency strategic planning".[5]**

Three perspectives on capability loom large amongst responses to this question. A first view was (as noted above), that the APS does not possess sufficient technology leadership at the Executive level service-wide to strategically manage and lead digital change. Second, some agencies with major IT projects clearly face serious capability constraints in getting skilled staff but agencies with modest IT effort report few difficulties. Capability constraints are reported in the following areas: digital strategists, data scientists and analytics, cyber security, and user experience professionals. Third, establishing mutually satisfactory technology partnerships is perceived to be a throttle to change.

"As soon as we develop the capability it is gobbled up by one of our partners".

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[5] See: http://stateoftheservice.apsc.gov.au/2015/10/digital-transformation-in-the-aps/ (accessed 29 March 2016).

2.5 FROM WHERE DOES AUSTRALIA DRAW ITS DIGITAL LESSONS?

Most informants were of the view that 'Australia is currently playing catch-up with its European counterparts' with regard to digital change but 'we compare well with the US'. Some argued that the APS was not very open to new ideas but others that internationalisation involves both informal and formal processes of policy learning through professions and international organisations.

> *"Canberra is very insular; closed to what happens in other countries and industries – a 'we know best' approach tends to dominate which is blatantly absurd".*

> *"We shamelessly take ideas from wherever we can find them".*
>
> *"We tend to cherry pick positive and negative lessons from certain countries and international organisations such as the OECD".*

The APS tends to learn most of its digital lessons from the Anglophone countries such as the United Kingdom (e.g. digital service delivery), New Zealand (e.g. data integration) and the Banking sector (e.g. data integration and fraud deterrence). Many informants (including at least five with a UK background) questioned the UK case as a positive exemplar ('but negative lessons can often be more important'). The countries that were impacted most profoundly by the Global Financial Crisis appear to have embraced digital disruption; in particularly, New Zealand and the UK. Estonia was the exception in this regard. Most interviewees referred to the Estonian example as a source of emulation but recognized that it wasn't perhaps the most exportable example given the countries state of development and different base-line for change. Frequent mention was also made to the Nordic countries and particularly Denmark and the work of the Danish Agency for Science, Technology and Innovation and Mindlab.

Table 5: Most frequently mentioned sources of learning

AREA OF INNOVATION	EXEMPLAR
Data (reintegration)	Estonia's X-Road connects all the decentralised components of its e-Government data system; New Zealand Integrated Data Infrastructure; Denmark Data Registers
On-line digital service delivery	Banking sector (e.g. Commonwealth Bank); Denmark Mindlab and co-design interventions; Estonia's eID is the nationally standardized system for verifying a person's identity in an online environment; Singapore's VITAL shared services system; UK Digital Transformation Strategy GOV.UK
Regulation for digital era governance	New Zealand Financial Management Reforms

2.6 WHERE CAN WE FIND GOVERNMENT ACTING AS AN EXEMPLAR WITHIN AUSTRALIA?

It should be noted that Australia is currently ranked second behind South Korea in the UN world rankings for the quality of its E-government (UN 2014, p. 15). However, most respondents were of the view that it is this period of change which will lead to Australia's anointment as a pioneer in digital innovation. Many respondents pointed to examples of Australian public service agencies acting as digital exemplars. Table 7 shows that the schemes most nominated cover a range of DEG1 and DEG2 reforms. The size of the agency, its history and core business and its proximity in relationship to the primary government agenda tends to inform the selection of examples. For example, the ATO and the DHS have long histories of engagement in digital innovation due to the large number of transactions they conduct on-line and their potential for joining-up other service areas (ANAO, 2009).

It will be important to monitor and evaluate these interventions carefully to assure proof of concept. Most agencies see significant potential for Artificial Intelligence in enhancing citizen interactions with government and Big Data analytics for improving the quality of real-time decision-making. Table 6 also demonstrates the wide range of innovations currently taking place in these areas.

The appetite within the citizenry for digital service delivery is also on the rise:

2.8 MILLION people have accessed myGov to lodge online

More than **ONE MILLION** citizens lodged online tax returns on myTax in its first year

4.1 MILLION people have linked their MyGov account to the ATO

450,000 super accounts worth **$1.9 BILLION** have been consolidated online since 2014

1.2 MILLION Australians have enrolled their voiceprint with ATO to verify their identity since mid-August 2014[6]

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[6] See: ATO, http://lets-talk.ato.gov.au/Digitalbydefault/news_feed/digital-by-default-consultation-paper-november (accessed 22 March 2016).

Table 6: Most frequently mentioned government exemplars

AREA OF INNOVATION	EXEMPLAR
Artificial intelligence (DEG2)	DHS NDI scheme
Data capability enhanced through	ABS CPI and Freight Movement Projects; ABS On-line First Census;
DEG2 digital enablers	CSIRO Cotton Research; CSIRO Data 61; CSIRO Big Data and Earth Observation delivered via the AuScope Grid; Department of Finance E-invoicing system and Digital Budget; GeoScience Remote Sensing project enabled through Data cube technology via Landsat satellites
Governance (institutional mechanisms to enable and exploit digitisation) (DEG1)	Digital Transformation Office; NISA Delivery Unit; PM&C Innovation and Transformation Team; Policy Office DSS
Investment (DEG2)	DSS Investment Approach using analytics and Big Data capability
Procurement (DEG1)	NISA's Digital Marketplace
On-line digital service delivery (DEG1)	ATO's Roadmap of Change for Tax Professionals, and My Tax; Department of Employment's Work for the Dole Supervisor App; DHS's MyGov; Service NSW
Regulation	Driverless Vehicle Regulation (National Transport Commission); Identity management (ATO and PM&C)

2.7 WHAT TECHNOLOGY PARTNERSHIPS ARE WORKING AND WHY?

The APS has a broad range of technology partners to enhance capability in software and application design, the establishment and management of data centres and government Cloud IT services, data analysis, co-design of new business processes (e.g. shared services), the design of 'one-stop' provisions and increasingly 'ask-once' processes (see Table 7). As noted above, most interviewees were sceptical about the capability of agencies to build strong and lasting technology partnerships. As one respondent put it: 'Many Commonwealth agencies (with some high profile exceptions) do not know how to work collaboratively with digital industries' (defined in the broadest sense to also include creative industries and other sources of collaboration and innovation).

Nonetheless, our informants identified similar ingredients of better practice for forging productive technology partnerships. These included a variation of the following qualities: 'clear mission or purpose'; 'common

understanding of the problem or task'; 'mutual recognition of interdependence'; 'respect'; 'shared responsibility'; 'joint financial investment'; 'clear ground rules'; 'process transparency and accountability' and 'flexibility'. It was envisaged that these qualities would help to foster trust systems and build problem-solving capability. There was divided opinion as to whether a set of common values were required to underpin the venture. These observations are in keeping with better practice in collaborative governance (see Ansell and 2008; O'Flynn and Wanna 2008).

Table 7: Most frequently mentioned technology partnerships

PARTNER	FUNCTION
EMC	Data storage
Accenture	IT consultancy, system integrator
IBM	System integration
Microsoft	Desktop, software
Oracle	Enterprise solutions
SAP	Enterprise solutions
Telstra	Communications

2.8 DIGITAL DILEMMAS

Our research identifies at least nine dilemmas which could provide focus areas for enhancing the strategic management of the change process and mainstreaming digital behaviours in the work plan of the APS. These dilemmas can be organised around cultural, legislative, resource and capability barriers. In practice, these barriers interact with one another in a dynamic way and impact directly and indirectly on the implementation of digital change. Each dilemma prompts a strategic question which can help guide our thinking at the Summit.

Cultural barriers

1. A 'wait and see' approach still drives many digital investment and enabling decisions in some agencies prompting perceptions of a culture of risk aversion. DEG culture shift is occurring in agencies with significant customer interaction or Big Data needs. It has also occurred at the individual public servant level rather than the organisational level and is benefiting from a 'Turnbull-effect' -a strong political agenda fostered by Prime Minister Malcolm Turnbull 'who gets technology and the opportunities that it provides for improving problem-solving in a period of fiscal constraint'. Can the public service change itself or does it require concerted and ongoing political will to make the change?

2. The APS is yet to clearly articulate the purpose of digital change and embed it in the hearts and minds of its leadership. A limited view of digital change, confined by department or agency siloes to specific aspects of change, inhibits useful lesson-drawing and surfacing new ideas across government. The exemplar projects being run by the Digital Transformation Office (DTO) aim to generate a wider cultural change, and some discussions have begun around a 'Digital Academy' for the public service as a whole. Does the APS need a unifying strategic digital vision and a set of policies working to achieve that vision?

3. 'The dominant ways we do things around here' remain as a key barrier to change - this is reflected in: the tendency for government to work like a machine when digital requires a systems approach; the separation of the policy elite from delivery leads to key expertise being locked out of digital policy design; policy-making is dominated by formal economists and their policy values and there is little time for new methods that question dominant assumptions about how the world works; and, there is insufficient understanding of what the public values. How does the APS ensure that it does not cut itself off from exchange with new sources of knowledge and expertise in a digital age?

Legislative barriers

There is a common perception that 'Tell us once' (a joined up information management system) is not possible within existing privacy laws. A similar problem applies to procurement laws and the capacity to use different digital channels of communication and delivery. However, others argue that the call for legislation is 'an excuse for inertia'.

Is foundation legislative reform necessary to enable deeper digital change or is there room for manoeuvre within existing legislation to make the change?

Resource barriers

Budget rules (e.g. persistence of annual budget cycles) are a serious impediment to establishing and maintaining the necessary digital infrastructure for transformative change. Investment in digital infrastructure requires greater strategic thinking in alignment with national innovation needs. Is a National Innovation and Science Agenda plausible without a National Digital Transformation Initiative? Does the APS purely require more flexible budget rules to ensure investment in digital change or are these perceived barriers a further 'excuse for inertia'?

Capability barriers

1. Capability (alongside culture) is commonly viewed to be the major barrier to digital change both in the public sector and in Australia more generally. The APS has a limited understanding of its digital workforce capability and by implication its present and future workforce needs.

2. Is a digital workforce capability review needed?

3. The APS does not possess sufficient technology leadership at the Executive level service-wide to strategically manage and lead digital change. Is technology leadership required at the Executive level of all departments and agencies to manage change? Should there be a fundamental re-evaluation of the role of the CIO?

4. Departments with major digital projects face serious capability constraints in getting skilled staff but agencies with modest IT effort report few difficulties.

5. Are profound changes required at the tertiary education and departmental graduate training levels to ensure fit for purpose digital capability? Has the need for STEM postgraduate education reaching crisis proportions?

6. Establishing mutually satisfactory technology partnerships is a throttle to change. Commonwealth government (with some high profile exceptions) does not know how to work collaboratively with digital industries (defined in the broadest sense to also include creative industries and other sources of collaboration and innovation). How are technology partnerships best established and maintained?

2.9 PARTING SHOTS – SEEING DIGITAL

It is evident that digital change is transforming agencies with significant service delivery and data analytic functions. Other smaller, non-technical agencies have hardly been affected. We can organise responses to digital change in the APS around four main types – innovators, pragmatic compliers, critical compliers and laggards.

Innovators are the earliest adopters, who display leadership and enthusiasm for implementing digital change. They tend to make mistakes because they are chartering new territory in areas where they often lack technical expertise.

Pragmatic compliers are the second wave of adopters who emulate the innovators and do only what they need to do. They are essentially adaptive agencies that avoid confrontation with both central coordinating authorities and agency interests.

Critical compliers are late adopters who reshape their digital policies and programs to fit their own needs and preferences. The level of innovation in these organisations can equal or even surpass the efforts of the innovators. Indeed, delay is used as a strategic device to gain comparative advantage.

Laggards exist outside the gaze of political attention where there is little pressure to respond to mainstream agendas. These are either highly technical portfolios with low tech digital needs or non-technical agencies with low tech policy or regulatory needs. There are very few of these left.

As we have seen, the principle influences on the response of different agencies to digital change is determined by a combination of its function, decision-making culture, capability and degree of politicisation (i.e. relevance to the core government agenda). Nonetheless, there is also sufficient evidence to suggest that the essential dynamic of change is such a powerful centrifugal force that even the few laggards left will be unable to resist. In a period of declining trust in government at all levels digital change affords government a unique historical opportunity to reconnect with the citizen. Hence, as one informant put it: 'The guiding principle of digital change should be whether the level of trust that citizens' have in government increases as a consequence'.

Despite its impressive ranking in global league tables, there is still much to be done in the APS to clearly articulate the purpose of digital change and embed it in the hearts and minds of public servants. Once the APS has a strategic digital vision and a set of policies working to achieve that vision, it then needs to look at itself. The implementation of a strategic vision almost always requires change: change in the activities and behaviours of public servants and of the service as a whole, including of budget allocations. If a strategy is designed properly then it will be possible to construct an understanding of plausible potential futures, a desired vision of the future, a set of outcomes that create public value, organisational alignment and allocation of resources throughout the delivery system to

support achievement of those outcomes, together with accountability and feedback mechanisms to measure attainment. In combination these can provide 'line of sight': a way for leaders – both political and bureaucratic – to see the links between strategic aims and intent, policy processes and delivery and achievement at the front line – and a way for the front line and citizens to see exactly the same things.

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APPENDIX 1: A LIST OF THE ORGANISATIONS INTERVIEWED FOR THIS PROJECT

To ensure a broadly representative APS sample we developed a typology of departments/agencies that exhibited the following characteristics:

1. Departments/agencies most likely to engage in disruptive digital transformation (agencies with digital by default targets of 80% by 2017).

2. Departments/agencies least likely to engage in disruptive digital transformation by virtue of their portfolio not requiring significant customer interaction or Big Data analytics.

3. Departments/agencies likely to require disruptive digital transformation by virtue of the technical nature of their portfolio and the opportunities afforded by Big Data analytics.

4. And, departments/agencies likely to have embedded norms and values due to longstanding history.

COMMONWEALTH DEPARTMENTS AND AGENCIES

Australian Public Service Commission

Attorney-General's Department

Australian Bureau of Statistics

Australian Federal Police

Australian Research Council

Australian Taxation Office

Commonwealth Scientific and Industrial Research Organisation (CSIRO)

Defence Science and Technology Organisation

Department of Defence

Department of Education and Training

Department of Employment

Department of the Environment

Department of Finance

Department of Health

Department of Human Services

Department of Immigration and Border Protection

Department of Industry, Innovation and Science

Department of Social Services

Department of Veterans' Affairs

Department of Prime Minister and Cabinet

Digital Transformation Office

National Transport Commission

Treasury

STATES AND TERRITORIES

ACT CIO (former)

NSW Department Finance, Services and Innovation

NSW Department of Premier and Cabinet

NSW Education

NSW Health (e-Health)

NSW Treasury

DIGITAL CONSULTANTS